96. (New) The isolated polypeptide of claim 61, wherein said polypeptide is immunogenic against bacterial infection.

97. (New) The isolated polypeptide of claim 61, wherein said amino acid substitutions comprise host preferred amino acid substitutions.

98. (New) The isolated polypeptide of claim 61, wherein said amino acid substitutions comprise conservative amino acid substitutions.

REMARKS

Status of the Claims

Claims 46, 47, 50-52, 54-63, 65-72, 74-79, 81-89, and 91-94 stand rejected. Claims 48 and 49 stand objected to. Claims 53, 64, 73, 80, and 90 were withdrawn from consideration.

Claims 73, 79, 84, 85, and 86 have been canceled without prejudice or disclaimer. Applicants reserve the right to pursue claims 73, 79, 84, 85, and 86 in a continuation or divisional application.

Claims 59-63, 67, 69-72, 74-76, 78, 81, 87, and 93 have been amended. Applicants expressly reserve the right to pursue the subject matter encompassed by claims filed on June 7, 2002 in a continuation or divisional application. Claims 95-98 have been added.

Claims 46-72, 74-78, 80-83, and 87-98 are pending.

Amendments to the Claims

Please cancel claims 73, 79, 84, 85 and 86 without prejudice or disclaimer.

Claim 64 has been amend to recite " at least 138" consecutive amino acids of SEQ ID NO:24. Support for this amendment can be found, for example, in Figure 2A-1.

Claims 65, 67, 74(a) and 74(b) have been amended to recite the polypeptide comprises "up to 398 amino acids". Support for this amendment can be found, for example, in Figure 2B-2.

Claim 66 has been amended to be independent. Claims 67, 68 and 79 have been amended to change dependency.

Claims 70(c), 70(e), 73(c), 73(e), 74(c), 75(c), 75(e), 77, 82, 88, and 94 have been amended to recite the polypeptide comprises "up to 328 amino acids". Support for this amendment can be found, for example, in Figure 2B-1 of the specification.

Claims 70(d), 73(d), 74(e), 75 (a), 78 have been amended to recite the polypeptide comprises "up to 376 amino acids". Support for this amendment can be found, for example, in field identifier <121> of SEQ ID NO:7 in the sequence listing.

Claim 79 has been amended to recite the polypeptide is "immunogenic". Support for this amendment can be found, for example, on page 7, lines 9-11 and pages 38-39 of the specification.

Claim 95 has been added and recites a pharmaceutical composition. Support for this claim can be found, for example, on page 40-41 of the specification. Support for an "acceptable adjuvant, carrier, or diluent" can be found, for example, on page 41 and on page 39 lines 8-9 of the specification.

Claim 96 has been added and recite that the polypeptide is immunogenic against bacterial infection. Support for this claim can be found, for example, on page 13, lines 5-11 of the specification.

Claim 97 has been added and recites that the amino acid substitutions comprise host preferred amino acid substitutions. As discussed in further detail below, support for this amendment can be found, for example, on page 13, lines 5-11 of the specification.

Claim 98 has been added and recites that amino acid substitutions comprise conservative amino acid substitutions. Support for this amendment can be found, for example, on page 26, lines 19-31 and 27 of the specification.

No new matter has been added by way of these amendments.

Election and Restriction

Claims 53, 64, 73, 80, and 90 were withdrawn from consideration as being directed to a non-elected invention. Applicants respectfully traverse and request the Examiner to reconsider the Restriction.

Claim 73 recites a vaccine comprising an amino acid sequence set forth in SEQ ID NO:11. As claim 73 is encompassed by Group V in the original Restriction Requirement mailed August 18, 1999, claim 73 has been canceled without prejudice or disclaimer. Applicants reserve the right to pursue claim 73 in a divisional application.

Claims 64 and 90 are drawn to isolated polypeptides "wherein said polypeptide is immunogenic against bacterial infection." The Examiner asserts that the intent of claims 64 and 90 is a vaccine and therefore concludes that the claims are drawn to non-elected inventions. Applicants respectfully traverse. The claims are drawn to *compositions* and recite a polypeptide having a specific function (i.e., immunogenic against bacterial invention). First, there is no intended use recited in the claims 64 and 90. The claims at issue are drawn to compositions NOT methods of use. The Examiner's attempt to draw a use limitation into the claim is improper. The claims recite a specific sequence having a specific function. As such, claims 64 and 90 are properly encompassed by the elected Group I (drawn to polypeptides) of the Restriction Requirement mailed August 18, 1999. The Examiner is respectfully requested to reconsider and examine claims 64 and 90 in the present application.

Claims 53 and 80 are drawn to a pharmaceutical composition comprising a specific polypeptide and a pharmaceutically acceptable adjuvant, carrier, or diluent. First, the Applicants are unaware of any authority that supports the Examiner's statement that all uses of claims 53 and 80 must be enabled. Moreover, it is unclear how this impacts the restriction of the claims. Second, claims 53 and 80 are identical to originally filed claim 39 which was classified in Group I of the Restriction Requirement mailed August 18, 1999. As such, the Applicants' election of Group I results in claims 53 and 80 being drawn to the elected invention and the Examiner is respectfully requested to reconsider and examine claims 53 and 80 in the present application.

In summary, the originally elected claims set forth in Group I in the Restriction Requirement of August 18, 1999 encompass claims 53, 64, 80 and 90. The Examiner is therefore respectfully requested to examine these claims in the instant application.

The Objections to the Specification Should Be Withdrawn

The Abstract submitted in the Preliminary Amendment mailed June 7, 2002 was not entered. As requested by the Examiner, the Abstract has been presented in the instant response on a separate sheet. Applicants respectfully request the Examiner to enter the amended Abstract into the application.

The description of Figure 2A was objected to for not providing a SEQ ID NO for each of the sequences depicted in the figure. The preliminary amendment filed on June 7, 2002 references SEQ ID NO:28-39 in the figure legend of Figure 2A. Applicants verify that SEQ ID NOS:28-39 correspond to those appearing in Figure 2. The Examiner is correct that the consensus sequence appearing at the top of the Figure 2 is not contained in the sequence listing. An amended sequence listing is submitted herewith containing SEQ ID NO: 40 that corresponds to the consensus sequence appearing in Figure 2. In addition, the specification has also been amended to recite that SEQ ID NO:40 appears in Figure 2 and to specifically identify the correspond SEQ ID NO of each sequence appearing in the figure. Applicants submit that the specification and sequence listing are now in compliance with 37 CFR 1.821-1.825 and the Examiner is respectfully requested to withdraw the objection.

The Rejection of the Claims Under 35 U.S.C. §112, First Paragraph, Should Be Withdrawn

Written Description

Claims 51, 57-63, 65-68, 71-72, 79, 84-89 and 91-94 were rejected under 35 U.S.C. §112, first paragraph, for lack of written description. This rejection is respectfully traversed.

Claims 51, 57, 78, and 84 recite polypeptides having "up to 475 amino acids". Claims 78 and 84 have been canceled without prejudice or disclaimer. The Examiner acknowledges that page 7, lines 3-5 of the specification discloses a 475 amino acid protein, however continues to assert sufficient description is not provided. It is well established that "the disclosure need only reasonably convey to persons skilled in the art that the inventor had possession of the subject

matter in question." *Fujikawa v. Wattanasin*, 39 USPQ 2d 1895, 1904 (Fed. Cir. 1996). Moreover, the Examiner is reminded that "the test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at the time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language." *In re Edwards*, 196 USPQ 465 (CCPA 1979). As outlined below, the specification in the instant case clearly satisfies this standard.

First, as indicated on page 6, lines 5-6 of the specification, the invention provides an isolated polypeptide "*comprising* an amino acid sequence of an N-terminal choline binding protein" and further provides specific SEQ ID NOs containing such sequences. Second, page 6, lines 20-24 also states that the polypeptides of the invention encompass *fragments* of N-terminal choline binding protein truncates. And third, page 7, lines 3-5 of the specification provide a specific example indicating that the polypeptides may comprise 475 amino acids. Accordingly, the disclosure in the instant specification would reasonably convey to persons skilled in the art that the inventor had possession of the subject matter in question and consequently, the requirements of 35 U.S.C. §112, first paragraph, are satisfied. The Examiner is respectfully requested to withdraw the rejection of claims 51 and 57 under 35 U.S.C. §112, first paragraph.

It is further noted that the Federal Circuit has made it clear that "the Examiner (or the Board, if the Board is the first body to raise a particular ground for rejection) 'bears the initial burden . . . of presenting a prima facie case of unpatentability'. . . Insofar as the written description requirement is concerned, that burden is discharged by 'presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims.'" *In re Alton*, 37 USPQ 2d at 1583-84 (Fed. Cir. 1996). The Office Action has failed to satisfy this requirement. As discussed above, the specification provides sufficient description to satisfy the requirements of 35 U.S.C. § 112, first paragraph. However, if the Examiner continues to maintain the rejection, further explanation of the rejection is respectfully requested.

And finally, the Examiner further asserts that dependant claims 51, 57, 78, and 84 are confusing as it is unclear whether these dependant claims are directed to fragments of SEQ ID NOS:5, 4, 11 or 10 or to larger proteins of SEQ ID NOS:4, 5, 11 or 10. The Examiner is correct in that SEQ ID NO:5 is 109 amino acids, SEQ ID NO:4 is 106 amino acids, SEQ ID NO:11 is 107 amino acids and SEQ ID NO:10 is 106 amino acids. Independent claims 46, 54, 74, and 81 all recite *open language* drawn to the respective SEQ ID NOs. Consequently, these independent claims do not encompass fragments, but rather encompass polypeptides having *at least* the sequence set forth in the recited SEQ ID NO so long as the polypeptide does not bind to choline and has lectin activity. Dependent claims 51, 57, 78, and 84 cannot be broader than their respective independent claims and therefore also do not encompass fragments. Rather, dependent claims 51, 57, 79, and 84 encompass polypeptides having the respective amino acid sequence set forth in SEQ ID NOS:5, 4, 11 or 10, "wherein said sequence does not bind choline, has lectin activity and comprises up to 475 amino acids". Applicants submit that claims 51 and 57 are clear.

Claims 52, 58, 79, and 85 were rejected for lack of written description for the term "up to 460 amino acids". The Examiner concludes that basis for this term does not appear on pages 6 and 37 and in Figure 2B of the specification. This rejection is respectfully traversed.

Claims 79 and 85 have been canceled without prejudice or disclaimer.

First, Figure 2B-3 provides a C-terminal choline binding protein having 460 amino acids. Second, and as outlined above, page 6, lines 5-6 and page 37, lines 20-30 of the specification state that the invention provides an isolated polypeptide "*comprising* an amino acid sequence of an N-terminal choline binding protein" and further provides specific SEQ ID NOs containing such sequences. Accordingly, the disclosure in the specification would reasonably convey to persons skilled in the art that the inventor had possession of the subject matter in question and consequently, the requirements of 35 U.S.C. §112, first paragraph are satisfied. The Examiner is respectfully requested to withdraw the rejection of claims 52 and 58 under 35 U.S.C. §112, first paragraph.

The Examiner further states that claim 52, 58, 79, and 85 are confusing, as it is unclear if the dependant claims are directed to fragments or larger proteins. As outlined above, independent claims 46, 54, 74 and 81 do not encompass fragments, but rather recite open language and encompass polypeptides having *at least* the sequence set forth in the recited SEQ ID NO so long as the polypeptide does not bind to choline and has lectin activity. Dependent claims 52, 58, 79 and 85 cannot be broader than their respective independent claims and therefore also do not encompass fragments. Rather, claims 52, 58, 79 and 85 encompass polypeptides having the respective amino acid sequence set forth in SEQ ID NOS:5, 4, 11 or 10, wherein said sequence does not bind choline, has lectin activity and comprises up to 460 amino acids. Applicants submit claims 51 and 57 are clear.

Claims 59 and 86 were rejected for lack of sufficient written description for term "at least 52 consecutive amino acids". Claim 86 has been canceled without prejudice or disclaimer. Claim 59 has been amended and recites a fragment of SEQ ID NO:24 having at least 138 consecutive amino acids of SEQ ID NO:24. Support for this amendment can be found in Figure 2A-1 which provides a fragment of SEQ ID NO:24 having 138 amino acids. (See Ntype4 CbpA.) The Examiner is respectfully requested to not apply the rejection to the amended claim.

Claim 60 and dependant claims 61-63, 67-68, 87-89, and 93-94 were rejected under 35 U.S.C. §112, first paragraph, for lack of written description. This rejection is respectfully traversed.

Claim 60 recites a polypeptide having "at least one to 57 amino acid substitutions". The Examiner asserts that page 13 and 14 of the specification discloses only particular amino acids substitutions and thus does not support the claim. As discussed above, "the test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at the time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language." *In re Edwards*, 196 USPQ 465 (CCPA 1979).

In the instant case, pages 13 and 14 of the instant specification provides 1) that the identity of *one or more* amino acid residues may be changed or modified; 2) that the substitution of the amino acid sequence can comprise replacement of "*one or more residues*"; 3) examples of *57* possible amino acid substitutions are set forth; and, 4) figure 2 provides examples of 23 sequence variants of the claimed polypeptides. Applicants submit that this disclosure is sufficient to satisfy the written description requirement of 35 U.S.C. §112, first paragraph, as a variant having at least one to 57 amino acid substitutions would be clearly understood by one of skill in the art in view of the disclosure in the specification. The Examiner is respectfully requested to withdraw the rejection of claims 60 and dependant claims 61-63, 67-68, 87-89, and 93-94 under 35 U.S.C. §112, first paragraph.

Claims 65 and 91 were rejected under 35 U.S.C. §112, first paragraph, for lack of written description for reciting the term "host preferred amino acid substitutions". This rejection is respectfully traversed. The Examiner asserts that the specification provides support for only codons preferred for expression in selected non-mammalian host cells.

Again, the subject mater of the claim need not be described literally or "*in haec verba*" in order for the specification to satisfy the written description requirement. It is sufficient that the specification "convey to those skilled in the art, to whom it is addressed, in any way, the information that the application has invented the specific subject matter latter claimed". *In re Wertheim,* 191 USPQ 90, 97 (CCPA 1970). In the Instant case, the specification provides, on page 13, lines 1-13, that variants of the polypeptides of the invention include the incorporation of "preferred" codons. Moreover, the specification further states that a wide variety of eukaryotic and prokaryotic hosts can be used to express the sequences of the invention, including various human and animal cells. See, page 32, lines 29-32 and page 33, lines 1-2 of the specification. And finally, the specification states on page 33, lines 4-22 that it "will be understood that not all vector expression control sequences and hosts will function equally well to express the DNA sequences of this invention" and provides various examples of alterations in the expression systems that can be made to improve expression of the sequences of the invention. Accordingly,

the instant specification adequately describes (both explicitly and inherently) to one of skill in the art a polypeptide having "host preferred amino acid substitutions" and the requirements of 35 U.S.C. §112, first paragraph, have been satisfied. The Examiner is respectfully requested to withdraw the rejection of claims 65 and 91 under 35 U.S.C. §112, first paragraph, and not apply the rejection to newly submitted claim 97.

Claims 71 and 72 were rejected under 35 U.S.C. §112, first paragraph, for lack of written description. This rejection is respectfully traversed.

Claims 71 and 72 recite that the sequences "retain native tertiary structure". The Examiner states that the specification provides no disclosures of this concept. The Examiner's attention is drawn to page 7, lines 6-8 which, contrary to the Examiner's conclusion, provides literal support for this phrase. The Examiner offers no explanation as to why these claims are not supported by the specification. Page 4, lines 5-9 of the Office Action states that the rejections for lack of written description are new matter rejections. As discussed above, the PTO bears the burden of establishing a *prima facie* case of lack of written description. Applicants submit that one of skill in the art, in view of the specification, would recognized that the Applicant was in possession of the invention set forth in claims 71 and 72 and thus, the requirement of 35 U.S.C. §112, first paragraph, is satisfied. The Examiner is respectfully requested to withdrawn the rejection of claims 71 and 72.

Enablement

Claims 69-72 were rejected under 35 U.S.C. §112, first paragraph, for lack of enablement. This rejection is respectfully traversed.

Claims 71 and 72 are drawn to an isolated polypeptide comprising the amino acid sequence in SEQ ID NOS: 1, 3, 4, 5, 7, 9, 10, 11, 22, 23, or 24, "wherein said polypeptide retains native tertiary structure". The Examiner asserts that the claim language does not exclude other tertiary structures that the native protein may take under different conditions and provides as an example, the fact that binding proteins routinely change tertiary structure upon binding a ligand.

However, the Examiner's attention is drawn to page 7, lines 1-11 which states that the native tertiary structure of the polypeptide sequences recited in claims 71 and 72, will be the same as the tertiary structure found in the full length choline binding protein. Consequently, the Examiner's concern that the tertiary structure is influenced by various conditions is irrelevant as the determination of tertiary structure will be made via a comparison of the tertiary structure of the full-length sequence under identical conditions as the truncated sequence encompassed by claims 71 and 72. Various methods are routinely preformed in the art for making such tertiary structure comparisons. Techniques such as X-ray crystallography and various computational programs allow for the determination of tertiary protein structure.

The Federal Circuit has repeatedly stated that enablement is not precluded by the necessity for some experimentation, so long as the experimentation needed to practice the invention is not undue. *In re Wands,* 8 USPQ 2d 1400 (Fed Cir 1988). Furthermore, a considerable amount of experimentation is permissible, if it is merely routine, or if the specification provides a reasonable amount of guidance in which the experimentation should proceed. *Id.*

Applicants stress that when evaluating the quantity of experimentation required, the court looks to the amount of experimentation required to practice a single embodiment of the invention, rather than the amount required to practice every embodiment of the invention. In the instant case, the quantity of experimentation required to practice the invention amounts to two steps, determining the tertiary structure of the full-length protein under a specific set of conditions and determining if the truncate of the protein retains the tertiary structure of the full-length protein under identical assay conditions. Such assays are routine in the art. Ample guidance is therefore provided to allow one of skill in the art to identify the sequence encompassed by claims 71 and 72. Applicants respectfully request that the rejection of claims 71 and 72 under 35 U.S.C. §112, first paragraph, be withdrawn.

Claims 69 and 70 were rejected under 35 U.S.C. §112, first paragraph, for lack of enablement. This rejection is respectfully traversed. Claims 69 and 70 are drawn to an analog or

a derivative of a polypeptide set forth in SEQ ID NOS: 1, 3, 4, 5, 7, 9, 10, 11, 22, 23, or 24. The Examiner concludes that "one of ordinary skill would not know what polypeptide to make with respect to claims 69 and 70". The Examiner's attention is drawn to page 21, lines 8-11 that describes an analog of a polypeptide of the present invention as having a modified N- or C-terminus including, for example, an N-terminal methionine or an N-terminal polyhistidine. Additionally, a derivative, as explained on page 21, lines 13-19, is a polypeptide having one or more chemical moieties attached thereto. Pages 21-26 go on to provide multiple examples of these derivatives and analogs and how they are made. Accordingly, Applicants respectfully submit that the present specification provides ample support for one of skill to make and use analogs and derivatives of the sequences of the invention, and thus, claims 69 and 70 are fully enabled. The Examiner is respectfully requested to withdraw the rejection of claims 69 and 70 under 35 U.S.C. §112, first paragraph.

The Rejection of the Claims Under 35 U.S.C. §112, Second Paragraph, Should Be Withdrawn

Claim 55 and 82 were rejected under 35 U.S.C. §112, second paragraph, for indefiniteness. This rejection is respectfully traversed.

Claim 55 is drawn to a polypeptide of claim 54, "wherein said polypeptide comprises SEQ ID NO:22". The Examiner states that claim 55 is confusing as SEQ ID NO:22 does not encompass SEQ ID NO:4. As discussed above, claim 54 recites open language and encompasses a polypeptide having the amino acid sequence set forth in SEQ ID NO:4. Dependant claim 55 is *narrower in scope* as it recites the *longer* amino acid sequence set forth in SEQ ID NO:22. As such, claim 55 is in proper format and not indefinite. The Examiner is respectfully requested to withdraw the rejection of claim 55 under 35 U.S.C. §112, first paragraph.

Similarly, claim 82 is drawn to a polypeptide of claim 81, "wherein said polypeptide comprises SEQ ID NO:23". Claim 81 recites open language and encompasses a polypeptide having the amino acid sequence set forth in SEQ ID NO:10, wherein said polypeptide does not bind to choline, has lectin binding activity, and comprises up to 328 amino acids. Dependant

claim 82 is *narrower in scope* as it recites an amino acid sequence set forth in SEQ ID NO:23 that is *longer* than the sequence of SEQ ID NO:10. As such, claim 82 is in proper format and not indefinite. The Examiner is respectfully requested to withdraw the rejection of claim 82 under 35 U.S.C. §112, first paragraph.

Claims 46-47, 50-52, 54-63, 65-72, 74-79, 81-89 and 91-94 were rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential elements. Specifically, the Examiner concludes that the "the omitted elements are: inclusion of [the] entirety of sequence responsible for lectin activity". This rejection is respectfully traversed.

First, the Examiner states on page 7, lines 1-3 of the Office Action mailed August 21, 2002 that the specification states that SEQ ID NO:1 is required for lectin activity. This is an incorrect interpretation of the data. As indicated in Example 2, both R1 (SEQ ID NO: 1) and R2 (SEQ ID NO:3) have lectin activity with slightly different specificities.

Second, to determine the acceptability of claim language under 35 U.S.C. §112, second paragraph, one must determine if one of skill in the art would understand what is claimed. In fact, it is well established that if a claim describes the subject matter so that its scope would be understood by persons in the field of the invention, and the claim distinguishes the claimed subject matter from the prior art, the claim is definite. In the instant case, the claims recite a polypeptide having a specific SEQ ID NO and further state that the polypeptide does not bind choline and has "lectin activity". It is unclear how one of skill in the art could conclude an element is missing from the claim when the element itself, i.e., the functional language that recites "lectin activity" is explicitly recited in the claim. Consequently, one of skill in the art would clearly understand that claims 46-47, 50-52, 54-63, 65-72, 74-79, 81-89 and 91-94 of the instant invention encompass polypeptides that *have lectin activity* and moreover, the person of skill in the art would be able to distinguish the claimed subject matter from the prior art. As such, claims 46-47, 54-63, 65-72, 74-79, 81-89 and 91-94 satisfy the requirements of 35 U.S.C. §112, second paragraph, and the Examiner is respectfully requested to withdraw the rejection.

The Rejection of the Claims Under 35 U.S.C. §102 Should Be Withdrawn

Claims 69 and 70 were rejected under 35 U.S.C. §102 as being anticipated by WO 97/41151 and WO 97/09994. This rejection is respectfully traversed.

Claims 69 and 70 have been amended and are drawn to derivatives and analogs of SEQ ID NOS: 1, 3, 4, 5, 7, 9, 10, 11, 22, 23 or 24. The Examiner asserts that SEQ ID NO:25 of WO 97/41151 and Figures 13, 21, and 22 of WO 97/0994 have sequences in common with SEQ ID NO: 1, 3, 7 and 9 of the instant invention and further asserts that claims 69 and 70 have "no particular structural requirements." The Examiner therefore concludes claims 69 and 70 are anticipated. This reasoning is insufficient to anticipate claims 69 and 70.

First, as discussed above and contrary to the Examiner's assertion, the specification does define the terms analog and derivative. An "analog" of a polypeptide is defined as having an N- or C- terminal modification and a "derivative" of a polypeptide is defined as a polypeptide having one or more chemical moieties attached thereto. See page 21, lines 8-11 and page 21, lines 13-19 of the specification. Second, it is unclear why it was concluded that claims 69 and 70 recite "no particular structural requirements". Claims 69 and 70 recite specific SEQ ID NOS and thus do recite a particular structure. And third, neither WO 97/41151 nor WO 97/09994 recite the amino acid sequence set forth in claims 69 and 70. As the sequences claimed in claims 69 and 70 are not disclosed in either WO 97/41151 or WO97/0994, the Examiner is respectfully requested to withdraw the rejection of claims 69 and 70 under 35 U.S.C. §102. If the Examiner continues to maintain the rejection, Applicants respectfully request Blast alignments be provided.

Claims 69 and 70 were rejected under 35 U.S.C. §102(a) as being anticipated by Hammerschmidt *et al.* (1997) *Molecular Medicine* 25(6):1113-1124. This rejection is respectfully traversed.

The Examiner concludes that Hammerschmidt *et al.* disclose a sequence that contains the sequence set forth in SEQ ID NO:6 (KXXE) and SEQ ID NO:9 and concludes that claims 69 and 70 are anticipated. Claims 69 and 70 recite analogs and derivatives of various SEQ ID NOS including SEQ ID NOS:1, 3, 4, 5, 7, 9, 10, 11, 22, 23 or 24. Hammerschmidt *et al.* discloses a

482 amino acid sequence sharing sequence identity to the amino acid sequence of SEQ ID NOS:7, 9, 10, 11 or 23 of the invention. Hammerschmidt *et al.* does not disclose analogs or derivatives of the disclosed polypeptide nor does the reference teach an amino acid sequence having a length of 328 or 376 amino acids in length as recited in claims 69 and 70. Accordingly, claims 69 and 70 are not anticipated by Hammerschmidt *et al.* and the Examiner is respectfully requested to withdraw the rejection of claims 69 and 70 under 35 U.S.C. §102.

CONCLUSIONS

Accordingly, in view of the above remarks, it is submitted that this application is now ready for allowance. Early notice to this effect is solicited.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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"Express Mail" Mailing Label Number EL868642720US Date of Deposit: December 12, 2002 I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202. Pamela Lockley Pamela Lockley	CERTIFICATE OF MAILING I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202. _____

Version with Markings to Show Changes Made:

In the Specification:

Please replace page 5, paragraph 2, lines 9-10 with the following text:

Comparison of homologies of various serotypes of the nucleic acid and amino acid sequence of the N-terminal region of CbpA (SEQ ID NOS: 28-39). Specifically, SPB328 corresponds to SEQ ID NO:28; SPB365 corresponds to SEQ ID NO:29; SPB105 corresponds to SEQ ID NO:30; SPSJ12 corresponds to SEQ ID NO:31; SPB331 corresponds to SEQ ID NO:32; SPR332 corresponds to SEQ ID NO: 33; ATCC2 corresponds to SEQ ID NO:34; R6 corresponds to SEQ ID NO:35; SPSJ9 corresponds to SEQ ID NO:36; ATCC6B corresponds to SEQ ID NO:37; Ntype4 corresponds to SEQ ID NO:38; and ATCC4 corresponds to SEQ ID NO: 39. The consensus sequence appearing in Figure 2 is set forth in SEQ ID NO:40.

In the Claims:

Please cancel claims 73, 79, 84, 85 and 86 without prejudice or disclaimer.

Please amend the claims as follows:

59. (Amended) An isolated polypeptide comprising a fragment of an amino acid sequence of SEQ ID NO:24, wherein said fragment does not bind to choline, has lectin activity and comprises at least [52] 138 consecutive amino acids of SEQ ID NO:24.

60. (Amended) An isolated polypeptide comprising an amino acid sequence as set forth in SEQ ID NO: 5, wherein said amino acid sequence comprises at least one to 57 amino acid substitutions, wherein said polypeptide does not bind choline and has lectin activity and said polypeptide comprises up to 398 amino acids.

61. (Amended) [The] An isolated polypeptide [of claim 60, wherein said polypeptide comprises] comprising the amino acid sequence set forth in SEQ ID NO:3, wherein said amino acid sequence comprises at least one to 57 amino acid substitutions, and said polypeptide does not bind choline and has lectin activity.

62. (Amended) The isolated polypeptide of claim [60] 61, wherein said polypeptide comprises the amino acid sequence set forth in SEQ ID NO:1, wherein said amino acid sequence comprises at least one to 57 amino acid substitutions, and said polypeptide does not bind choline and has lectin activity.

63. (Amended) The isolated polypeptide of claim [60] 61, wherein said polypeptide comprises the amino acid sequence set forth in SEQ ID NO:24, wherein said amino acid

sequence comprises at least one to 57 amino acid substitutions, and said polypeptide does not bind choline and has lectin activity.

67. (Amended) An isolated polypeptide comprising an amino acid sequence set forth in SEQ ID NO: 4, wherein said amino acid sequence comprises at least one to 57 amino acid substitutions, wherein said polypeptide does not bind choline and has lectin activity and said polypeptide comprises up to 398 amino acids.

69. (Amended) An isolated polypeptide comprising [an analog of the amino acid sequence set forth in SEQ ID NO: 1, 3, 4, 5, 7, 9, 10, 11, 22, 23, or 24 wherein said polypeptide does not bind choline and has lectin activity] an amino acid sequence selected from the group consisting of:

a) an analog of the amino acid sequence set forth in SEQ ID NO:5, wherein said polypeptide does not bind choline and has lectin activity;

b) an analog of the amino acid sequence set forth in SEQ ID NO:4, wherein said polypeptide does not bind choline and has lectin activity;

c) an analog of the amino acid sequence set forth in SEQ ID NO:11, wherein said polypeptide does not bind choline and has lectin activity, and comprise up to 328 amino acids;

d) an analog of the amino acid sequence set forth in SEQ ID NO:9, wherein said polypeptide does not bind choline and has lectin activity, and comprises up to 376 amino acids; and,

e) an analog of the amino acid sequence set forth in SEQ ID NO:10, wherein said polypeptide does not bind choline and has lectin activity and comprises up to 328 amino acids.

70. (Amended) An isolated polypeptide comprising [a derivative of an amino acid sequence set forth in SEQ ID NO: 1, 3, 4, 5, 7, 9, 10, 11, 22, 23, or 24 wherein said polypeptide does not bind choline and has lectin activity] an amino acid sequence selected from the group consisting of:

a) a derivative of the amino acid sequence set forth in SEQ ID NO:5, wherein said polypeptide does not bind choline and has lectin activity;

b) a derivative of the amino acid sequence set forth in SEQ ID NO:4, wherein said polypeptide does not bind choline and has lectin activity;

c) a derivative of the amino acid sequence set forth in SEQ ID NO:11, wherein said polypeptide does not bind choline and has lectin activity, and comprise up to 328 amino acids;

d) a derivative of the amino acid sequence set forth in SEQ ID NO:9, wherein said polypeptide does not bind choline and has lectin activity, and comprises up to 376 amino acids; and,

e) a derivative of the amino acid sequence set forth in SEQ ID NO:10, wherein said polypeptide does not bind choline and has lectin activity and comprises up to 328 amino acids.

71. (Amended) An isolated polypeptide comprising [the amino acid sequence set forth in SEQ ID NO: 1, 3, 4, 5, 7, 9, 10, 11, 22, 23, or 24, wherein said amino acid sequence comprises at least one to 57 amino acid substitutions, wherein said polypeptide retains native tertiary structure, does not bind choline, and has lectin activity] an amino acid sequence selected from the group consisting of:

a) the amino acid sequence set forth in SEQ ID NO:5 wherein said amino acid sequence comprises at least one to 57 amino acid substitutions and said polypeptide comprises up to 398 amino acids, retains native tertiary structure, does not bind choline and has lectin activity;

b) the amino acid sequence set forth in SEQ ID NO:4 wherein said amino acid sequence comprises at least one to 57 amino acid substitutions and said polypeptide comprises up to 398 amino acids, retains native tertiary structure, does not bind choline and has lectin activity;

c) the amino acid sequence set forth in SEQ ID NO:11 wherein said amino acid sequence comprises at least one to 57 amino acid substitutions and said polypeptide retains native tertiary structure, does not bind choline and has lectin activity, and comprise up to 328 amino acids;

d) the amino acid sequence set forth in SEQ ID NO:9 wherein said amino acid sequence comprises at least one to 57 amino acid substitutions and said polypeptide retains native tertiary structure, does not bind choline and has lectin activity, and comprises up to 376 amino acids;

e) the amino acid sequence set forth in SEQ ID NO:10 wherein said amino acid sequence comprises at least one to 57 amino acid substitutions and said polypeptide retains native tertiary structure, does not bind choline and has lectin activity and comprises up to 328 amino acids; and,

f) the amino acid sequence set forth in SEQ ID NO:3 wherein said amino acid sequence comprises at least one to 57 amino acid substitutions and said polypeptide retains native tertiary structure, does not bind choline and has lectin activity

72. (Amended) An isolated polypeptide comprising [the amino acid sequence set forth in SEQ ID NO: 1, 3, 4, 5, 7, 9, 10, 11, 22, 23, or 24, wherein said polypeptide retains native tertiary structure, does not bind choline, and has lectin activity] an amino acid sequence selected from the group consisting of:

a) the amino acid sequence set forth in SEQ ID NO:5, wherein said polypeptide retains native tertiary structure, does not bind choline and has lectin activity;

b) the amino acid sequence set forth in SEQ ID NO:4, wherein said polypeptide retains native tertiary structure, does not bind choline and has lectin activity;

c) the amino acid sequence set forth in SEQ ID NO:11, wherein said polypeptide retains native tertiary structure, does not bind choline and has lectin activity, and comprise up to 328 amino acids;

d) the amino acid sequence set forth in SEQ ID NO:9, wherein said polypeptide retains native tertiary structure, does not bind choline and has lectin activity, and comprises up to 376 amino acids; and,

e) the amino acid sequence set forth in SEQ ID NO:10, wherein said polypeptide retains native tertiary structure, does not bind choline and has lectin activity and comprises up to 328 amino acids.

74. (Amended) An isolated polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:11, wherein said polypeptide does not bind to choline and has lectin activity and comprises up to 328 amino acids.

75 (Amended) [The] An isolated polypeptide [of claim 74, wherein said polypeptide comprises] comprising an amino acid sequence as set forth in SEQ ID NO:9 wherein said polypeptide does not bind to choline and has lectin activity and comprises up to 376 amino acids.

76. (Amended) The isolated polypeptide of claim [74] 75, wherein said polypeptide comprises SEQ ID NO:7.

78. (Amended) The isolated polypeptide of claim [74] 75, wherein said polypeptide is immunogenic [comprises an amino acid sequence having up to 475 amino acids].

81. (Amended) An isolated polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:10, wherein said polypeptide does not bind to choline and has lectin activity said polypeptide comprises up to 328 amino acids.

87. (Amended) An isolated polypeptide comprising an amino acid sequence set forth in SEQ ID NO: 11, wherein said amino acid sequence comprises at least one to 57 amino acid

substitutions, and said polypeptide does not bind choline and has lectin activity and comprises up to 328 amino acids.

93. (Amended) An isolated polypeptide comprising an amino acid sequence set forth in SEQ ID NO: 10, wherein said amino acid sequence comprises at least one to 57 amino acid substitutions, and said polypeptide does not bind choline and has lectin activity and comprises up to 328 amino acids.